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One phase of the American Industry Project was the development of a pilot program for teacher education. The decision was made to determine what kind of teacher was needed and develop the curriculum to produce this teacher. To make this determination a review of literature and interviews were conducted. Three kinds of criteria were most often used in research: student gain, rater evaluation, and logical argument. The data from the reviews and interviews were cast into a multi-cell two dimensional model for classification purposes. The second level of the model is a 2 X 2 matrix showing modifiable or non-modifiable attributes which were identifiable from authors' opinions or research data. At the fifth level some cells contain as many as 17 attributes. This system permits a rational classification of existing information and the storage and retrieval of new information on teachers' attributes. The classification model is applied to 29 references with a numeric code and a verbal description given for each classification which represent" an attribute at some level of specificity. Bibliographic items date from 1924 to 1964. (EM)

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TEACHER MODEL

A Model To Guide Curriculum Development For the American Industry Project*

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Teacher Model

One phase of the American Industry Project is the development of a pilot teacher education program for teachers of American Industry. To enable the Project to carry out this development, it seemed logical to determine what the end product, or teacher, should be like and then build a curriculum which seemed likely to succeed in developing the sort of teacher desired.

Since there was not an adequate precedent for the type of teacher we wanted to prepare, some sort of decisions had to be made about the kind of teacher needed before development of a curriculum could proceed. Thus, it became necessary to build a teacher model, or guide, for the development of a curriculum.

The teacher model was not conceived of as an original development, nor was it intended to project a stereotype model teacher. It is a structuring of available information into a form which provides guidance for curriculum development. The model is flexible and intended to provide for change as additional data is brought into it.

Two sources were used for the collection of our data: A review of literature and interviews.

The data were sorted into four cells.

1.1 Modifiable - supported by opinion.

1.2 Modifiable (under typical classroom conditions) - supported by data.

2.1 Non-modifiable - supported by opinion.

2.2 Non-modifiable (under typical classroom conditions) - supported by data.

	Supported by opinion 1	Supported by data 2
Modifiable 1		
Not Modifiable 2		

In many cases different instruments were used in several studies relating to a given point of view. This raised the question of whether the several instruments were, in fact, getting at the same thing.

The question was resolved as well as possible by analyzing the instruments involved and the inferences drawn from it. If the instruments and inference were consistent, then the dimension they represented was accepted in an appropriate cell.

In the general sense, three types of criteria were found to have been used in the data which was collected; student gain, rater evaluation, and logical argument. The first two criteria were considered as offering support to a dimension through empirical data; the last, logical argument, was considered as offering support through opinion. Precedence of validity was given to these three criteria in the following order: (1) Student gain, (2) rater evaluation, and (3) logical argument.

Where the collected data were not consistent, precedence was given to data representing the above criteria, in the order given. In each such case, attention was given to the design of the study, the appropriateness of the conclusions, and the appropriateness of the statistics used. Consideration was also given to the relevance of the logical argument. As these conflicts of internal consistency were resolved in favor of a given point of view, it

was taken as a teacher dimension, supported by empirical data or opinion, depending upon the outcome of the resolution. If there was no agreement or if the weight of evidence did not substantially support one point of view, then the dimension was not included, or it may have been included as supported only by opinion if there was considerable body of consistent opinion and only a little research. A dimension may be included on the basis of support by opinion alone.

Within both classifications, supported by opinion and supported by empirical data, there was a classification by modifiability. That is, modifiable or not modifiable.

Modifiable implied that the dimension was one which might be attacked directly with some hope of success by some typical educational processes directly under the control of a teacher within the university. Knowledge of subject matter is a dimension of this classification.

Not modifiable implied those teacher dimensions which may not be predictably affected by the direct actions of a teacher under typical conditions. The various personality characteristics are dimensions of this classification.

This illustration shows the model with a few of the dimensions in place.

	Supported by opinion 1	Supported by data 2
	1	2
Modifiable 1	1.1.1 Has consistent philosophy 1.1.3 Relates to school and community 1.1.8 Acceptable personal appearance	1.2.2 Can establish set 1.2.3 Uses appropriate forms of reference 1.2.10 Has broad cultural interests 1.2.13 Knows his subject
Not Modifiable 2	2.1.1 Acceptable physical appearance 2.1.2 Acceptable societal model	2.2.2 Is flexible 2.2.4 Good intelligence 2.2.5 Energetic

This classification system permits both a rational classification of existing information and facilitates the storage and retrieval of new information by cell code, number, and letter subscripts. If new data supports or rejects a given dimension, this may be recorded on the classification by a + or -. This permits the revision of teacher dimensions as additional data becomes available. This is an on-going procedure. Dimensions may be added, eliminated, or relocated with ease. Because of the limited amount of data available concerning some of the dimensions, their present location may be rather tentative.

In the following pages, the classification of the teacher dimension is indicated at the left on each page. At the right of each dimension number is the description of the dimension. The reference to research or opinion supporting its classification is below the description. In the case of some dimensions, consensus was arrived at locally; in these cases there is no reference below the description of the dimension. In all cases, the references given describe or clarify the dimension. They do not represent all of the data available for that dimension.

CELL 1.1

(Consensus -- Modifiable)

1.1.1
Has Consistent Philosophy

This dimension implies that a teacher, as a person, ought to have a constructive code of ethics and a philosophy.

Reference: Haskew, 1956, P. 199.

1.1.2
Involves Self in Schoolwide Activities as Appropriate

This dimension implies that a teacher should "provide professional leadership in extracurricular class activities which are an important part of the learning environment of the school."

Reference: Peters, Burnett, and Farwell, 1963, P. 55.

1.1.3
Relates School to Community

This dimension implies that the school may use both the human (parents, policemen, doctors) and physical (newspaper offices, fire house) resources of the community.

Reference: Hansen, 1957, P. 308-312.
Holman, P. 183.

1.1.3.1
Has support with industry in the community (local consensus).

1.1.4
Relates Curriculum to Society

This dimension implies that "the school itself shall be made a genuine form of active community life, instead of a place set apart in which to learn lessons."

Reference: Dworkin, 1959, P. 39, 45.

1.1.5
Involves Self in Community or Supra Community Activities as Appropriate

This dimension implies that a teacher, as a citizen of a community, has certain obligations, such as voting.

Reference: Peters, Burnett, and Farwell, 1963, P. 65.

1.1.6
Perceptive of Change

Reference: Public Schools of Baltimore County, 1953, P. 266.

1.1.7
Perceptive of World About His

This dimension may imply an "understanding of the physical world and man's relation to it."

Reference: Haskew, 1956, P. 199.

1.1.8
Has Acceptable Appearance

This statement refers to such things as one's clothes and hair style which should be neat and fairly conservative.

Reference: Badley and Keith, 1924, P. 319.
Holliday, 1952, P. 10.
Wynn, 1960, P. 232.

1.1.9
Can Conduct Action Research

"The teacher has a definite obligation to engage in research . . . The curiosity of man and especially pupils can be enhanced by research about them and with them."

Reference: Peters, Burnett, and Farwell, 1963, P. 361.

1.1.10
Can Aid in Vocational Guidance

Reference: Peters, Burnett, and Farwell, 1963, P. 52.

1.1.11
Knows School Finance and Administration Procedure and School Law

Reference: Armstrong, 1952, P. 15.
Metropolitan School Study Council, 1950, P. 14, 18.

1.1.12
Knows Social Structure of the Community

This dimension implies a "familiarity with the social and institutional structure of the community, the forces at work there and the relationships between the school and the community."

Reference: Haskew, 1956, P. 201.
Metropolitan School Study Council, 1950, P. 13.

1.1.13
Broad Background in Liberal and General Studies

This dimension implies that such a background is necessary to prepare individuals to deal intelligently with the problems arising from living in a democratic society.

Reference: Gould and Yoakam, 1954, P. 4, 33-34.

1.1.14

Committed to Life of Learning

(Local Consensus)

1.1.15

Effective Written Communication

This dimension implies that as an educated person, a teacher must have skill in written communication.

Reference: Haskew, 1956, P. 199.

1.1.16

Can Teach at all Conceptual Levels

(Local Consensus)

1.1.17

Good Housekeeper

This dimension implies that the ordinary classroom, and especially an industrial arts classroom, should be neat. Students must also be taught how to care for equipment and materials.

Reference: Selvidge and Fryklund, 1930, P. 41.
Butler, 1939, P. 303.

CELL 1.2

(Supported by data -- modifiable)

Dimension No. Description

1.2.1

Can change from an authoritarian to non-authoritarian teaching mode as necessary

Reference: Biddle, Ellena, P. 219-220.
Gage, Handbook of Research on Teaching, 1963, P. 427, 429.

1.2.2

Establishing Set

The term set refers to the establishment of cognitive rapport between pupils and teacher to obtain immediate involvement in the lesson. Experience indicates a direct relationship between the effectiveness in establishing set and effectiveness in the total lesson. If the teacher succeeds in creating a positive set, the likelihood of pupil involvement in the lesson will be enhanced. For example, one technique for inducing positive set is through the use of analogies that have characteristics similar to the concept, principle, or central theme of the lesson. By training interns in set induction procedures and having them apply these procedures in micro-teaching sessions, their subsequent classroom teaching is significantly improved.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.3

Establishing Appropriate Frames of Reference

A student's understanding of the materials of a lesson can be increased if it is organized and taught from several appropriate points of view. A single frame of reference provides a structure through which the student can gain an understanding of the materials. The use of several frames of reference deepens and broadens the general field of understanding more completely than is possible with only one. For example, the Emancipation Proclamation becomes more meaningful to the student when it is understood from the frames of reference of the Northern White abolitionist, the Southern White, the Negro slave in the seceded South, the free Negro, the European clothing manufacturer, the political leaders of England, and as an example of the reserved powers of the American President, than if it is simply discussed as the document issued by Lincoln which freed the slaves.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.4

Achieving Closure

Closure is complementary to set induction. Closure is attained when the major purposes, principles, and constructs of a lesson, or portion of a lesson, are judged to have been learned so that the student can relate new knowledge to past knowledge. It is more than a quick summary of the ground covered in a lesson. In addition to pulling together the major points and acting as a cognitive link between past knowledge and new knowledge, closure provides the pupil with a needed feeling of achievement. Closure is not limited to the completion of a lesson. It is also needed at specific points within the lesson so that pupils may know where they are and where they are going.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.5

Using Questions Effectively

The ability to ask provocative, answerable, and appropriate questions, and thus to involve pupils actively, is one of the critical skills in teaching . . . /Novice teachers tend to ask questions which are either so general as to be vague and impossible to answer satisfactorily or so specific that they require a one-word "fill-in" response, which tends to kill further responses./ . . .helps to build proficiency in preparing and using questions; factual, conceptual, thought-provoking, discussion-stimulating, heuristic questions.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.6

Recognizing and Obtaining Attending Behavior

The successful experienced teacher, through visual cues, quickly notes indications of interest or boredom, comprehension or bewilderment. Facial expressions, directions of the eyes, and tilt of the head, and bodily posture offer commonly recurrent cues which make it possible for the skilled teacher to evaluate his classroom performance according to the pupil's reactions. He can then change his "pace," vary the activity, introduce new instructional strategies as necessary, and improve the quality of his teaching.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.7

Control of Participation

Control of pupils' participation is one important variable in the successful learning for the pupils . . . Teachers develop different techniques for encouraging or discouraging classroom interaction and to gain insight into the casual relationship between a series of teacher-pupil interactions. When a teacher develops the skill to analyze and to control the use of his accepting and rejecting remarks, his positive and negative reactions, his patterns of reward and punishment, he has taken a major step toward effective teaching.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.8

Providing Feedback

The feedback process . . . may be simply stated as providing "knowledge of results." Teachers often ignore the availability of information accessible during the lesson. Questioning, visual cues, informal examination of performance, are immediate sources of feedback. Teachers can develop appropriate techniques to elicit feedback from students to modify their lesson accordingly. Teachers unconsciously tap a variety of feedback sources but unless they are sensitized, they tend to rely unevenly on a limited number of students as "indicators" and to rely on a restricted range of feedback cues.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.9

Employing Rewards and Punishments (Reinforcement)

Reinforcing desired pupil behavior through the use of reward and punishment is an integral part of the teacher's role as director of classroom learning. Substantial psychological evidence confirms the value of reinforcement in the learning process. The acquisition of knowledge of specific techniques of reward and punishment and the development of skill in using them appropriately in specific situations is most important.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.10

Has Broad Cultural Interests

This dimension implies interest and participation in the arts, music, painting, reading and literary matters.

Reference: Ryans, 1960, P. 360.
Biddle, Ellena, 1964, P. 91.

1.2.11

Stimulating, Imaginative

Reference: Biddle, Ellena, 1964, P. 91.
Ryans, 1960, P. 389.

1.2.12

Professionally Oriented

This dimension is often evaluated by raters. This usually refers to professional activity and knowledge, leadership and activity in oral professional organizations, and attitudes toward the profession.

Reference: Barr, 1961, P. 97-98.

1.2.13

Knows His Subject

This dimension is often evaluated in terms of college grades obtained, and/or ratings of one sort or another.

Reference: Biddle, Ellena, 1964, P. 219-220.
Barr, 1961, P. 69, 97-98.

CELL 2.1

(Consensus -- Non-modifiable)

2.1.1

Acceptable Physical Appearance

Students often react strongly to the appearance of a teacher. It can be an asset or a liability. Does the teacher have characteristics that are likely to be drawbacks to his acceptance; too thin, too fat, unusual facial contours, large hands or feet?

Reference: Garrett, 1964, P. 74.

2.2.2

Acceptable Societal Model

This dimension implies that a teacher must be a good example, a model for his pupils. This responsibility makes a teacher continually conscious of the impact of his behavior on his students.

Reference: Chandler, 1961, P. 231.
Gould and Yoakam, 1954, P. 5.

CELL 2.2

(Supported by data -- Non-Modifiable)

2.2.1
Open-minded

As the belief and disbelief system becomes closed, the isolation between and within the belief and the disbelief system increases. As closedness increases, there will be less differentiation of disbelief subsystems with respect to each other -- different disbelief subsystems will be perceived as the same. It is assumed that to the degree that the systems become closed, the content of such beliefs holds that we live alone, helpless, friendless, with an uncertain future; that the self is unworthy and inadequate, and that the way to overcome such feelings is by self-aggradizing, self-righteous identification with a cause and concern for power and status.

The more closed the system the more authority will be seen as absolute and people will be accepted and reputed because they agree or disagree with our belief-disbelief system.

The more one will rely upon authoritarian dictates to determine beliefs, the higher will be our tendency to avoid contact with facts, events, etc., incongruent with one's belief-disbelief system.

Reference: Rokeach, 1960, P.73-80.
Gage, 1963, P. 547-548.

2.2.2
Flexible

"Perseveration effects are not necessarily associated with any morbid process or with any particular character trait . . . If a person has the intellectual capacity for appreciating the consequences of his own determining tendencies and persists toward his goals despite blockage or deviation, we say that he is determined. When there is a lack of elasticity and adaptiveness with respect to other inhibiting and facilitating factors, determination becomes inflexibility." (Landes, Bolles, 1950, P. 507).

. . . to the extent that a person is said to be characteristically rigid /inflexible/ his analytic thinking should suffer . . . He cannot break down or overcome beliefs when they are no longer appropriate, in order to replace them with more appropriate ones . . . Persons high in rigidity should have greater difficulty in the analytic phase of problem solving than those persons low in rigidity. (Rokeach, 1960, P. 183, 185).

Reference: Biddle, Ellena, 1964, P. 95.
Barr, 1961, P. 97-98.

2.2.3
High MMPI K Scale

The MMPI K Scale seems to measure such traits as:

References: Gage, 1963, P. 540-541.
Biddle, Ellena, 1964, P. 87.
Barr, 1961, P. 97-98.

2.2.3.1 Responsible
2.2.3.2 Controlled (Gage, 1963, P. 424.)
2.2.3.3 Conscientious
2.2.3.4 Good interpersonal performance
2.2.3.5 Strong ego (Gage, 1963, P. 424.)
2.2.3.6 Friendly (Gage, 1963, P. 547-48.)(Ryans, 1960, P. 389.)
2.2.3.7 Adapts to needs of others
2.2.3.8 Conforming

Collectively, many of these attributes seem similar to the:

2.2.3.9 Warm helping attitude identified by some other devices

References: Gage, 1963, P. 547-48, 477.
Barr, 1961, P. 97-98.
Ryans, 1960, P. 389.

2.2.4
Has Good Intelligence

In the sense that intelligence is used here it refers only to academic performance and is usually evaluated in terms of grade point averages, ACT scores, or similar devices. "Good" generally is relative i.e. "A" grades are "better" than "C" grades or high ACT scores are "better" than relatively lower ones.

Reference: Barr, 1961, P. 69, 81.

2.2.5
Energetic

This dimension is characterized by a liking for a rapid pace rather than a slow, deliberate one -- quickness of action, production, and efficiency.

Reference: Gage, 1963, P. 548-549.
Barr, 1961, P. 97-98, 86.

2.2.6
Has Initiative

References: Gage, 1963, P. 547-48.
Barr, 1961, P. 69.

2.2.7
Has Participated in School-like Activities

This dimension includes such activities as playing school as a child, reading to younger children, youth camp counseling, and similar activities.

Reference: Barr, 1961, P. 17.
Biddle, Ellena, 1964, P. 81.

2.2.8
Highly Verbal

This dimension refers to the ability to call up many ideas in a situation relatively free from restriction.

Reference: Guilford, 1959, P. 382.
Knoll, 1956.
Coombs, 1965, P. 102.

2.2.9
Dominant

This dimension indicates a tendency to control the situation.

Reference: Hughes, 1959.
Barr, 1961, P. 97-98.
Gage, 1963, P. 547-548.

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